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FINAL TECHNICAL REPORT

Three Dimensional Structures in the Atmospheres of Cool Stars

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The Dimensional Structures in the Atmospheres of Cool Stars PI: Frederick M. Walter NASA #NAG51862-EUVE SUNY 431-4435A

This grant has supported my GHRS-related activities since 1990. This included both instrumental calibration activities and independent scientific research using the Goddarg High Resolution Spectrograph on the Hubble Space Telescope. The activities under this grant are essentially complete.

Publications to date which have resulted in whole or in part from this grant include:

- "First Results from the GHRS: The Chromosphere of Alpha Tauri", K.G. Carpenter, R. Robinson, D. Ebbets, J.L. Linsky, F.M. Walter, et al., ApJL 377, L45 (1991).
- "GHRS Observations of a Flare in AD Leonis", F.M. Walter & J. Bookbinder, BAAS, 24, 681 (1992).
- \*Observations of 3C 273 with the Goddard High Resolution Spectrograph on the Hubble Space Telescope", J.C. Brandt, et al. AJ 105, 831 (1993).
- \*Observing Stellar Coronae with the Goddard High Resolution Spectrograph. I. The dMe Star AU Microscopii", S.P. Maran et al., ApJ 421, 800 (1994).
- \*GHRS Profiles of Hot UV Lines in T~Tauri Stars'\*, J. Valenti, G. Basri, F. Walter, L. Hartmann, & N. Calvet, BAAS 26, 1351 (1994).
- "An Atlas of Alpha Orionis Obtained with the Goddard High Resolution Spectrograph on the Hubble Space Telescope", J.C Brandt et al. & F.M. Walter. AJ 109, 2706. (1995).
- "New Insights into Non-radiative Heating in Late-A Star Chromospheres", F.M. Walter, L.D. Matthews, & J.L. Linsky. ApJ 447, 353 (1995).
- "The Goddard High Resolution Spectrograph: In-Orbit Performance", J.C. Brandt et al. & F.M. Walter. PASP 107, 871. (1995).
- "Stellar Chromospheres", F.M. Walter, in "Stellar Surface Structure", ed. K.G. Strassmeier & J.L. Linsky (Dordrecht: Kluwer) (1996), p. 355.
- \*High Signal-to-Noise Ratio Observations of Weak Interstellar Absorption Lines towards xi Ophiuchi with the Goddard High Resolution Spectrograph aboard the Hubble Space Telescope", J.C. Brandt, et al. & F.M. Walter. AJ 112, 1128 (1996).
- \*HST/GHRS Observations of Molecular H\_2 Lyman Band Emission in Pre-Main Sequence Stars", F.M. Walter, G.S. Basri, A. Brown, J. Lissauer, & T. Millar, BAAS 27, 825 (1995)
- \*GHRS Observations of Molecular Hydrogen in the Gas Disks of Pre-Main

Sequence Stars", F.M. Walter & Y. Liu, in " The Scientific Impact of the Goddard High Resolution Spectrograph", eds. J.C. Brandt, C.C. Petersen, & T.B. Ake, (San Francisco: ASP) in press.

"AB Dor in '94", F.M. Walter, A. Collier-Cameron, N. Suntzeff, M. Kurster, O. Vilhu, & B. Slee. BAAS 27, 1431 (1995).